

# Chemical and Biological Engineering (2021)

for International Students only

	Course Code	Course Title	Credits (Hour)	Remarks	
<b>General Education (13 credits)</b>	GELI001	Liberty Justice Truth I	3(3)		
	GELI002	Liberty Justice Truth II	3(3)		
	GEWR001	College Writing	2(3)		
	IFLS011	Academic English I	1(2)		
	IFLS012	Academic English II	1(2)		
	GEKS005	Freshman Seminar I	1(1)		
	GEKS006	Freshman Seminar II	1(1)		
	GECT001	Computational Thinking	1(1)		
<b>Core General Education (6 credits)</b>	<b>Ethics &amp; Ideas</b>	GECE	3(3)	Choose 2	
	<b>Literature &amp; Art</b>	GELA	3(3)		
	<b>World Cultures</b>	GEFC	3(3)		
	<b>Historical Investigation</b>	GEHI	3(3)		
	<b>Quantitative Research</b>	GEQR	3(3)		
	<b>Sociological Studies</b>	GESO	3(3)		
	<b>Science &amp; Technology</b>	GEST	3(3)		
<b>Major-Related General Education (25 credits)</b>	MATH 161	Calculus with Lab I	3(4)	Choose 1	
	MATH 162	Calculus with Lab II	3(4)		
	PHYS 151	General Physics I	3(3)		
	PHYS 161	General Physics Laboratory I	1(3)		
	EGRN 125	Virtual Engineering Laboratory I	1(3)	Choose 1	
	PHYS 152	General Physics II	3(3)		
	PHYS 162	General Physics Laboratory II	1(3)		
	EGRN 126	Virtual Engineering Laboratory II	1(3)		
	CHEM 151	General Chemistry I	3(3)	Choose 1	
	CHEM 153	General Chemistry Laboratory I	1(3)		
	CHEM 152	General Chemistry II	3(3)		
	CHEM 154	General Chemistry Laboratory II	1(3)		
	CHBE153	Introduction to Computing and Informatics for CBE	3(4)		
	EGRN241	Fundamentals of Data Science	3(3)		
LIBS 150	Life Sciences	3(3)			
<b>MAJOR</b>	<b>Required (31 credits)</b>	CHBE222	Introduction to Chemical and Biological Engineering	2(3)	Physical Chemistry
		CHBE223	Organic Chemistry I	3(3)	
		CHBE224	Chemical Engineering Thermodynamics	3(3)	
		CHBE205	Biotechnology	3(3)	
		CHBE210	Fluid Mechanics	3(3)	
		CHBE207	Physical Chemistry	3(3)	
		CHBE211	Engineering Mathematics I	3(3)	
		CHBE323	Heat & Mass Transfer	3(3)	
		CHBE327	Reaction Engineering	3(3)	
		CHBE372	Chemical and Biological Engineering Laboratory I	2(4)	
	CHBE471	Chemical and Biological Engineering Laboratory II	2(4)		
	CHBE345	Methodology and Trends in Chemical and Biological Engineering	1(2)		
	<b>Intensive Advanced (12 credits)</b>	CHBE310	Separation Process	3(3)	Chemical Engineering Thermodynamics
		CHBE320	Process Control	3(3)	Engineering Mathematics I
		CHBE321	Bioprocess Engineering	3(3)	Biotechnology
		CHBE417	Process and Product Design	3(3)	
	<b>Major Elective</b>			29	
<b>Courses</b>		This remaining 14 credits can be fulfilled from any courses regardless of whether it is General Education or Major.		14	
<b>Subtotal</b>			<b>130</b>		

**● Credits Required In Major**

Courses		First Major	Intensive Major	Double Major	Dual Major	Minor	General Transfer	Undergraduate Transfer
Basic Course	Required	31	31	31	31	31	Assigned Required Credits	31
Advanced Course	Intensive Advanced	11	12	11	14	12		12
	Elective		29			—		29
<b>Total Credits in CHBE</b>		<b>42</b>	<b>72</b>	<b>42</b>	<b>57</b>	<b>43</b>		<b>72</b>

● Students must earn at least 1 credit form "Department Seminar I, II"

● Students must take "Human Rights and Gender Equality" 4 times

● Minimum Total Credits : 130

● Students pursuing Intensive Major must submit Graduation Thesis

● International students who entered in or after 2018 are exempt from those three graduation requirements below.

- Acquisition of public English proficiency test score

- Acquisition of public Korean proficiency test score

- Completion of 5 courses lectured in English